

## ABSTRACT

An electron emission device which is smaller, able to operate at lower voltage and more efficient than the conventional device is provided.

5       The device contains a light emitting device to irradiate light to a cathode wherein at least an electron emission face of the cathode is made of diamond. By composing the device in such a way, the voltage to draw out electrons can be lowered with a wide margin compared to the conventional device, and thus a small device which can be operated with low voltage may be  
10   obtained. The light emitting device is preferably formed as one unit with the cathode and it is also preferable that the light emitting device and the electrode are made of diamond. Furthermore, the electron emission face of the cathode is preferably an n- or p-type diamond semiconductor.